February 17, 2016

The City of Dayton Council,

I have come to inform you that CryoRain Inc. is planning to establish in the downtown area to prepare first responders and fire department crews for handling fire and crises circumstances with Nitrogen gas evaporated from liquid Nitrogen, an industrial gas product that is the fourth coldest liquid on earth. Nitrogen in all forms and molecular types comprise the seventh most abundant element and the diatomic Nitrogen molecule, N-N, or N_2, is 78% of the earth's atmosphere everywhere on this planet.

The atmosphere was recognized by Moses as the firmament in Genesis 1: 6-8 which is in the space between the water on the ground and the water above. In the order of recognition, it must be needed to have life on earth. It comes in Day Two. Day Three reports plants emerge and land masses rise from the waters covering the earth. Birds and insects and other flying creatures come later and need the Nitrogen in the atmosphere to fly. Dayton's most prestigious invention, the airplane by the Wright Brothers, needs the atmosphere to remain aloft. Thus it is appropriate, in my thinking anyway, that my Nitrogen uses should fit among Dayton's inventive history. The Liquid Nitrogen Enabler patent, USP 7,631,506, issued December 15, 2009 will reserve rights in the United States through December 14, 2026 and perhaps other patents may cover world use beyond that.

At the University of Wisconsin, Madison, I had many majors and took most of the offered biology and chemistry courses and then married a physicist who required my attending physics lectures with him while I served as an analytical chemist for the Botany Department's Atomic Energy Commission grant to determine the levels of 35 minerals in 250 native Wisconsin plants. My husband's professor, Julian E. Mack, served as Director of Optics and Spectroscopy on the Manhattan Project during World War II. In 1963 he was selected as Scientific Attaché to Sweden and sent many major European physicists to Madison to present their work allowing Mack's students to host these events giving me top level physics experiences. This "across the sciences" education I have makes inventing easy since both academic and industrial efforts feature just specializing in single science studies. Patent literature between the sciences is near empty which allowed the ever so basic patent USP 7,631,506 to be issued.

Nitrogen molecules, N_2, form a pure, inert gas. It, like Helium and other Noble gases, don't do much. At least that is what I thought when I started trying to find uses for liquid Nitrogen besides as a getter to improve vacuum conditions when coating lenses and in splattering on the floor to carry the dust and shavings on the lab floor to under the cabinets cleaning up when guests are expected. Liquid Nitrogen looks like water, but when spilled on the floor runs in balls like Mercury. It also has an affinity for itself. Then, playing with liquid Nitrogen and evaporating it as cryorain, falling in drops from containers with holes in the bottom, I found that Nitrogen gas, N_2, has the same affinity for itself as does liquid Nitrogen, only as a gas. It will stay pure displacing Oxygen, O_2, which eliminates flames in fires. And just being evaporated from liquid Nitrogen at -195.8°C., its cryogenic coldness cools the fuel, and keeps fire from re-igniting. This allows quelling an oil fire when burning oil is floating on water and allows the remaining oil to be frozen stiff on the water surface to be lifted from the water and let to melt so it can be used or sold to a refinery. This allows rapid spill recovery of organic materials like oils. And it enables remediation. We can end Behr Superfund Site contamination in Dayton threatening our ground water.

In fire situations, the just evaporated Nitrogen gas forms a layer in the smoke clearing in a few seconds so one can see everything at that level clearly. The water vapor passed from the ground to the upper levels and the smoke stayed above the Nitrogen until the Nitrogen warmed enough to rise in the smoke. Nitrogen gas is carried into a fire in the fire draft which draws it in with the fresh air. When the Nitrogen encounters the fire, it displaces the Oxygen and cools the fuel ending the burn. And when that happens the fire is ended with no water damage, no electrical arcing, and no ice buildup in winter conditions. These improvements lower the time and cost of recovery from a fire having only what burned, charred, melted or warped in the heat to be replaced. With Febreeze, the smoke smell is eliminated and one might even live or work in the burned building during the repairs. One's clothes, food, electronics and electrical equipment, décor, art, papers, and libraries, unless they burned, are not damaged. And for California, were their fire departments and wildland fire crews to convert from water to Nitrogen, all the water needed for fires would be available for community and agricultural uses.

Regulations and codes around the world are based on the National Fire Protection Association Codes, NFPA Codes, started in 1896 by the Chemical Industry to protect their chemical fire suppressant market. This covers water sprinkler systems which do as much damage to building and home interiors as the fires do. Nitrogen gas is only recognized as a fire suppressant in NFPA Code 2001. It is more efficient than water and the chemicals. These codes bar Nitrogen use from the market. I have corrected many US Forest Service letters turning down testing and allowing our crews on the wildland fire lines. I also corrected the Nitrogen Gas Section of the Occupational Safety and Health Administration Standards which was written based on the late 1990's NFPA Codes and Keith Motley, an OSHA Scientist, pulled the whole section from their online version of the OSHA Standards pending further review. Once we break through these barriers, the market will open rapidly. We have to be ready to educate first responders and crews to use cryogenic liquid Nitrogen safely and efficiently once conversion to Nitrogen gas starts.

Nitrogen gas from liquid Nitrogen has several advantages over water use including being a gas, it fills the space where the fire is and not just puddle like water and reflect the fire in the puddles. It has a 900°C thermal range of use compared with waters 100°C range being water fights fires as a liquid, not steam or ice and its range starts at evaporating temperature of Nitrogen. And, where in winter, water is solid so the fire hydrants can be frozen and ponds and lakes can be frozen over limiting water sources where liquid water can be collected to take to the fire where it is used as the liquid – one gallon picked up is one gallon useful to fire fighting where Nitrogen gas evaporated from liquid Nitrogen gives one 230 gallons of Nitrogen gas at cryogenic temperature, 250 gallons at ambient temperature and 600 or more gallons at inferno temperatures where it still can both displace Oxygen and cool extremely hot fuel. Nitrogen fire fighting in rural situations where fire hydrants don't exist allow a pickup truck of liquid Nitrogen to control a house or barn fire. It should be used to better protect agricultural lands.

What is planned to meet the Nitrogen fire suppressant market? In three multi-story buildings in downtown Dayton, CryoRain is preparing to establish headquarters, market, design and manufacture its Nitrogen delivery products, and house, feed and provide five day crew training sessions with an additional building for the R&D and Lab experiences of trainees. Six crews of six are prepared for fire department conversions and wildland and coal mine fire crews, and transportation crews. First

responders will be trained in classes of 36 and be presented with the whole range of uses so when they carry Nitrogen in their vehicles along with distribution equipment they can treat fires and floods, overheated equipment, spills, remediation, handling hostage situations and more. Kiosks for Nitrogen supplies and equipment can be at gas stations in the east, from the Mississippi River, Maine to Florida. This will make this country safer and reduce costs of recovery from fires and other crises.

With the 2016 New Year's Eve celebration in Dubai viewing 20 of the 63 floors of the World's currently tallest building burning, their water sprinkler system spread the electrical fire rather than put it out. We plan to market a competing Fixed Nitrogen Fire Control System that better handles electrical fires and others as well, and can handle other crises from bank robbery control to spills. An electrical fire near the elevators on the 20th floor of Dayton's Kettering Tower took out seven floors before it was controlled earlier this century.

In Boston in March 2012, they had one of two major transformers in a parking garage shared by two major hotels, have its oil insulation ignite. They called it a three alarm fire and used 17 hoses to flood the transformer to put out the fire. But what happened was the water displaced the oil in the transformer sending the burning oil from one transformer along with the oil for the second transformer onto the wet cement floor of the garage and the burning oil ignited the added oil and vehicles there causing black smoke with three foot visibility which they thought might be toxic. One third of Boston was without electric power for the three days following this fire. It shut down business for those days except for life saving situations like hospitals which were powered by 42 generators in semi-trailers. One gallon dewar of liquid Nitrogen rained on the burning oil in the one transformer would have ended the fire at a cost of $20 – retail charges for liquid Nitrogen from the welding supply house nearby.

Jobs to be filled in the first six months here in Dayton number 325. We may also have on-call crews for catastrophes as they occur. There is a $75million dollar proposal in circulation to end 47 coal mine fires. Ohio has two, one started 131 years ago and the other 96 years ago in labor disputes, and Pennsylvania with 45 fires including Centralia. This proving Nitrogen is capable to end these perpetual fires, allows our ending coal mine fires world-wide to stop heating the earth's crust which is warming the oceans and the mountains and huge islands of Greenland and Antarctica where rivers flow into the ocean at the ground level under the ice and snow filling the ocean with these fresh water sources. Ending these melts halts sea level rise flooding our ocean front and low ground levels.

I have a standing offer to end the burning in the Bridgeton landfill in the St. Louis Missouri area. This will cut the air pollution that has caused the population changes in Ferguson and on occasion spews nuclear radiation in the smoke since some of the waste from the Manhattan project during WWII is disposed there. We can also harvest fuels and useful chemicals from landfills lowering their volume of material and allowing these sites to be refilled and harvested again and again without the polluting disaster.

Since Dayton's Fire Chief, Jeffrey Payne, told me to take my business and get out of town, I feel that this order must be resolved before we invest in this location. Yesterday's warehouse fire where it was reported electricity had to be turned off in homes in the area of the fire because of tattered wiring in

the fire. And news reported a lack of available water. Nitrogen control would be better than water. And what advantages has Nitrogen gas over water or wetter water with fire suppressant chemicals?

- Nitrogen gas can end coal mine fires and with a demonstration of ending the 47 such fires in Ohio and Pennsylvania and can hopefully be commissioned to end all coal mine fires throughout the world by 2020 halting sea level rise.
- Waterless wildland fire control has been offered throughout the Western United States in 2015 to end the drought induced fires without using more of the water since the water table is at 17% capacity due to the drought in California and low throughout the other states as well.
- Nitrogen gas can gently end burning of clothing and flesh limiting damage and function loss, recovery time and recovery costs.
- Electrical fires can be put out without sparking and expansion of the fire using Nitrogen gas.
- Oil fires can be ended in seconds getting the flame out with Nitrogen where with water, the oil floats on the water flowing or still expanding the fire to the limit of wetness.
- Nitrogen gas just evaporated will solidify the oil spilled on water or land and allow its easy collection as solids and when melted in barrels be taken to local refineries for processing with no further contamination from collecting materials like blotters, sponges and powders.
- Where the catastrophe is imminent with a mixture of innocents and terrorists, the whole group can be put in drowning phase where terrorists can be restrained, resuscitated, interrogated and imprisoned, and innocents can be resuscitated and let to go on with their lives in the undamaged facilities where they live. They can finish the meal they were serving and wear the clothing there as well as use the utilities, computers, papers, documents, art and décor which has not been damaged.
- Freeze fracking of oil shale followed by hot Nitrogen fuel extraction can replace the caustic chemical fracking and water extracting now causing earthquakes, especially in Oklahoma.
- Increasing strength of levees by piping the levees to freeze their cores from shore to shore, a foot taller than the pipes and averaging four feet thick. It was offered to FEMA's Michael Brown in June, 2005. Got reply on August 18, 2005 stating it would be unfair to my competitors for FEMA to test this technology. Katrina hit August 28, 2005 and by the 29th 800 people died and 2/3rds of New Orleans was under water.

None of the above is yet common practice. The US Forest Service has sent me a letter cutting all communication on March 24, 2014 to pander to the big industrial giants benefiting from their underperforming techniques of extending the life of a catastrophe to meet contractor profit goals. Emergency management and fire control are very lucrative businesses to be in. Unfortunately it is dissipating tax resources at all levels of government and costing heavily on the financial holdings of middle and low income families. Nitrogen use will better serve the community and reduce these costs, not in jobs, but in cost of operations and losses per event for fighting the fire and recovering from it.

Respectfully submitted,

Denyse DuBrucq EdD

CEO, Inventor, and Chief Trainer